DOCKET NO. P04979 (NATI15-04979) **PATENT**
Customer No. 23990

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of	:	Lawrence J. Malone, et al.
Serial No.	:	09/938,209
Filed	:	August 23, 2001
For	:	APPARATUS AND METHOD FOR REDUCING POWER CONSUMPTION IN WIRELESS RF SYSTEMS
Group No.	:	2614
Examiner	:	Olisa Anwah

MAIL STOP APPEAL BRIEF PATENTS
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

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☐ Applicant claims small entity status. See 37 CFR 1.27

TOTAL AMOUNT OF PAYMENT	($) 500.00

Complete if Known	
Application Number	09/938,209
Filing Date	August 23, 2001
First Named Inventor	Lawrence J. Malone
Examiner Name	Olisa Anwah
Art Unit	2614
Attorney Docket No.	P04979 (NATI15-04979)

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FEE CALCULATION

1. BASIC FILING, SEARCH, AND EXAMINATION FEES

Application Type	FILING FEES Fee ($)	FILING FEES Small Entity Fee ($)	SEARCH FEES Fee ($)	SEARCH FEES Small Entity Fee ($)	EXAMINATION FEES Fee ($)	EXAMINATION FEES Small Entity Fee ($)	Fees Paid ($)
Utility	300	150	500	250	200	100	
Design	200	100	100	50	130	65	
Plant	200	100	300	150	160	80	
Reissue	300	150	500	250	600	300	
Provisional	200	100	0	0	0	0	

2. EXCESS CLAIM FEES

Fee Description	Fee ($)	Small Entity Fee ($)
Each claim over 20 or, for Reissues, each claim over 20 and more than in the original patent	50	25
Each independent claim over 3 or, for Reissues, each independent claim more than in the original patent	200	100
Multiple dependent claims	360	180

Total Claims	Extra Claims	Fee ($)	Fee Paid ($)
_____ - 20 or HP =	_____	x _____	= _____

HP = highest number of total claims paid for, if greater than 20

Indep. Claims	Extra Claims	Fee ($)	Fee Paid ($)
_____ - 3 or HP =	_____	x _____	= _____

HP = highest number of independent claims paid for, if greater than 3

Multiple Dependent Claims Fee ($)	Fee Paid ($)
_____	_____

3. APPLICATION SIZE FEE

If the specification and drawings exceed 100 sheets of paper, the application size fee due is $250 ($125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).

Total Sheets	Extra Sheets	Number of each additional 50 or fraction thereof	Fee ($)	Fee Paid ($)
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4. OTHER FEE(S)

	Fees Paid ($)
Non-English Specification, $130 fee (no small entity discount)	
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SUBMITTED BY

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DOCKET NO. P04979 (NATI15-04979) **PATENT**
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MAIL STOP APPEAL BRIEF - PATENTS
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

APPEAL BRIEF

Sir:

Applicants herewith respectfully submit that the Examiner's decision of September 19, 2006, finally rejecting Claims 1-26 in the present application, should be reversed, in view of the following arguments and authorities. This Brief is submitted in triplicate on behalf of Appellant for the application identified above. A check is enclosed for the fee for filing a Brief on Appeal. Please charge any additional necessary fees to Deposit Account No. 50-0208.

TABLE OF CONTENTS

TABLE OF AUTHORITIES

Cases

Regulations

Real Party in Interest

The real party in interest, and assignee of this case, is National Semiconductor Corporation.

Related Appeals or Interferences

To the best knowledge and belief of the undersigned attorney, there are none.

Status of Claims

Claims 1-26 are under final rejection, and are each appealed.

Status of Amendments after Final

No amendments were filed after final rejection. A response was filed after final rejection, but this response did not include any amendments.

SUMMARY OF CLAIMED SUBJECT MATTER

The following summary refers to disclosed embodiments and their advantages, but does not delimit any of the claimed inventions.

In General

The present application is directed, in general, to radio frequency (RF) receivers and, more specifically, to an apparatus and related method for reducing power consumption in a portable wireless device. *Page 1, lines 4-7.*

Support for Independent Claims

Note that, per 37 CFR §41.37, only each of the independent claims are discussed in this section. In the arguments below, however, the dependent claims are also discussed and distinguished from the prior art. The discussion of the claims is for illustrative purposes, and is not intended to effect the scope of the claims.

Independent claim 1 describes a radio frequency (RF) transceiver (100) that includes a radio

frequency (RF) modem section (120). The RF modem section comprises receive path circuitry (124) capable of receiving and down-converting an incoming RF signal to thereby produce an incoming baseband signal. The RF modem section also comprises transmit path circuitry (122) capable of receiving and up-converting an outgoing baseband signal to thereby produce an outgoing RF signal. The RF modem section also comprises a baseband section (150) comprising baseband circuitry capable of receiving and processing said incoming baseband signal and capable of generating said outgoing baseband signal. The RF modem section also comprises a power-saving apparatus (132) capable of determining that said baseband section is idle and, in response to said determination, placing the RF transceiver in a first of a plurality of low-power modes by reducing a power supply voltage providing power to said baseband section. According to claim 1, the power-saving apparatus comprises a timer (105), and only the timer is capable of receiving power when the RF transceiver is in another of the low-power modes. *Page 4, lines 5-2; page 13, line 1 - page 14, line 10; and Figure 1.*

For the convenience of the Board, Figure 1 is reproduced below:

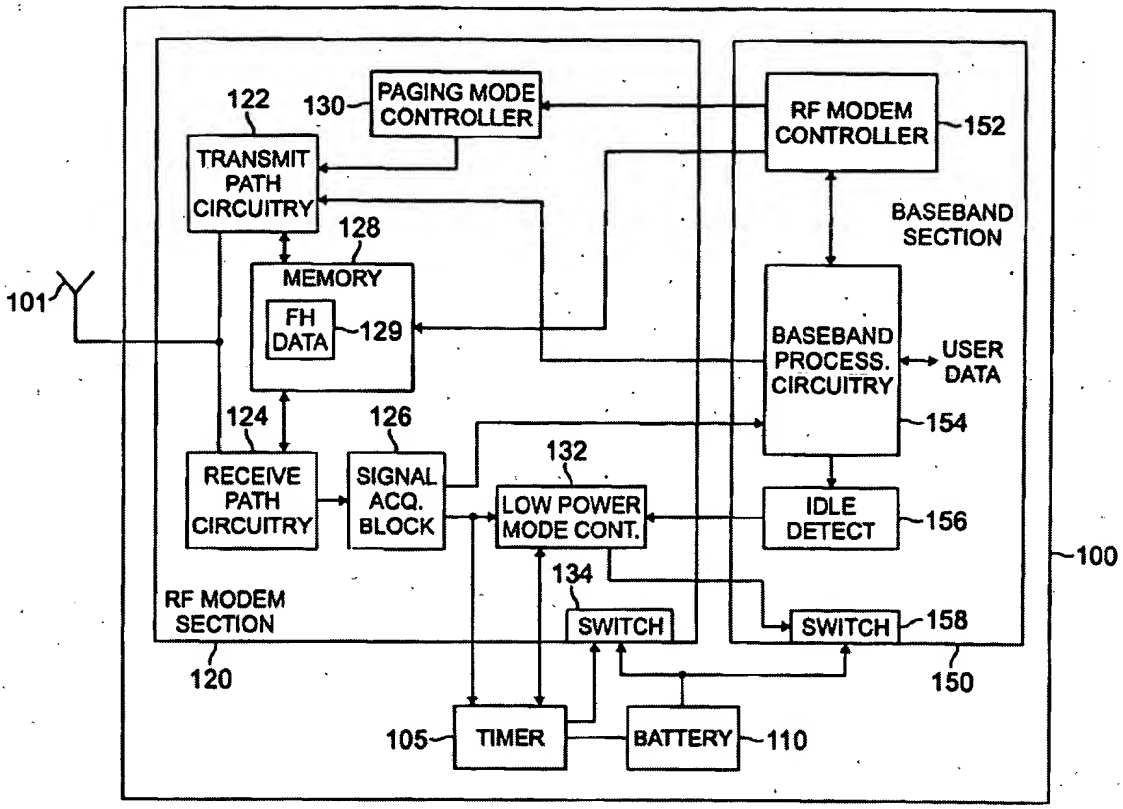


FIG. 1

Independent claim 13 describes a method (200) of reducing power consumption in a radio frequency transceiver (100) having receive path circuitry (124) for receiving and down-converting an incoming RF signal to produce an incoming baseband signal, transmit path circuitry (122) for receiving and up-converting an outgoing baseband signal to produce an outgoing RF signal, and a baseband section (150) comprising baseband circuitry (154) for receiving and processing the incoming baseband signal and generating the outgoing baseband signal. The method includes determining that the baseband section is idle (210), and, in response to the determination that the baseband section is idle, placing the RF transceiver in a first of a plurality of low-power modes by reducing a power supply voltage providing power to the baseband section (210). The method also includes, in another of the low power modes, supplying power only to a timer in the radio frequency transceiver, wherein the timer is capable of selectively increasing the power provided to at least the receive path circuitry (220). *Page 4, lines 5-2; page 13, line 1 - page 14, line 10; page 15, lines 2-24; and Figures 1 and 2.*

Independent claim 25 describes a radio frequency (RF) transceiver (100). The RF transceiver includes receive path circuitry (124) capable of receiving and down-converting an incoming RF signal to thereby produce an incoming baseband signal. The RF transceiver also includes transmit path circuitry (122) capable of receiving and up-converting an outgoing baseband signal to thereby produce an outgoing RF signal. The RF transceiver also includes baseband circuitry (150) capable of receiving and processing the incoming baseband signal and capable of generating the outgoing baseband signal. The RF transceiver also includes a power-saving apparatus (132) capable of reducing power provided to the baseband circuitry in a first low-power mode, reducing power provided to the baseband circuitry and to one of the transmit path circuitry and the receive path circuitry in a second low-power mode, and reducing power provided to the baseband circuitry, the transmit path circuitry, and the receive path circuitry in a third low-power mode. Claim 25 provides that the power-saving apparatus comprises a timer (105), and only the timer is capable of receiving power when the RF transceiver is in the third low-power mode. *Page 4, lines 5-2; page 13, line 1 - page 14, line 10; and Figure 1.*

Grounds of Rejection to be Reviewed on Appeal

1. Are Claims 1-26 obvious over Barber *et al.* (US 2002/0106997, "Barber") combined with Sheynblat *et al.* (US 2002/0016189, "Sheynblat") in further view of Dent (USP 5,940,742, "Dent")?

ARGUMENT

Stated Grounds of Rejection

The rejections outstanding against the Claims are as follows:

In the September 19, 2006 Office Action, Claims 1-26 were rejected under 35 U.S.C. §103(a) as being unpatentable over Barber *et al.* (US 2002/0106997, "Barber") combined with Sheynblat *et al.* (US 2002/0016189, "Sheynblat") in further view of Dent (USP 5,940,742, "Dent").

Legal Standards

Obviousness: In *ex parte* examination of patent applications, the Patent Office bears the burden of establishing a *prima facie* case of obviousness. (*MPEP § 2142; In re Fritch, 972 F.2d 1260, 1262, 23 U.S.P.Q.2d 1780, 1783 (Fed. Cir. 1992)*). The initial burden of establishing a *prima facie* basis to deny patentability to a claimed invention is always upon the Patent Office. (*MPEP § 2142; In re Oetiker, 977 F.2d 1443, 1445, 24 U.S.P.Q.2d 1443, 1444 (Fed. Cir. 1992); In re Piasecki, 745 F.2d 1468, 1472, 223 U.S.P.Q. 785, 788 (Fed. Cir. 1984)*). Only when a *prima facie* case of obviousness is established does the burden shift to the Applicant to produce evidence of nonobviousness. (*MPEP § 2142; In re Oetiker, 977 F.2d 1443, 1445, 24 U.S.P.Q.2d 1443, 1444 (Fed. Cir. 1992); In re Rijckaert, 9 F.3d 1531, 1532, 28 U.S.P.Q.2d 1955, 1956 (Fed. Cir. 1993)*). If the Patent Office does not produce a *prima facie* case of unpatentability, then without more the Applicant is entitled to grant of a patent. (*In re Oetiker, 977 F.2d 1443, 1445, 24 U.S.P.Q.2d 1443, 1444 (Fed. Cir. 1992); In re Grabiak, 769 F.2d 729, 733, 226 U.S.P.Q. 870, 873 (Fed. Cir. 1985)*).

A *prima facie* case of obviousness is established when the teachings of the prior art itself suggest the claimed subject matter to a person of ordinary skill in the art. (*In re Bell, 991 F.2d 781,*

783, 26 U.S.P.Q.2d 1529, 1531 (Fed. Cir. 1993)). To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed invention and the reasonable expectation of success must both be found in the prior art, and not based on the Applicant's disclosure. (*MPEP § 2142*).

In order to establish obviousness by combining references there must be some teaching or suggestion in the prior art to combine the references. *Arkie Lures, Inc. v. Gene Larew Tackle, Inc.*, 119 F.3d 953, 957, 43 USPQ2d 1294, 1297 (Fed.Cir. 1997) ("It is insufficient to establish obviousness that the separate elements of an invention existed in the prior art, absent some teaching or suggestion, in the prior art, to combine the references."); *In re Rouffet*, 149 F.3d 1350, 1355-56, 47 USPQ2d 1453, 1456 (Fed.Cir. 1998) ("When a rejection depends on a combination of prior art references, there must be some teaching, or motivation to combine the references.")

Evidence of a motivation to combine prior art references must be clear and particular if the trap of "hindsight" is to be avoided. *In re Dembiczak*, 175 F.3d 994, 50 USPQ2d 1614 (Fed.Cir. 1999) (Evidence of a suggestion, teaching or motivation to combine prior art references must be "clear and particular." "Broad conclusory statements regarding the teaching of multiple references, standing alone, are not 'evidence.'"). *In re Roufett*, 149 F.3d 1350, 1357, 47 USPQ2d 1453, 1457 (Fed.Cir. 1998) ("[R]ejecting patents solely by finding prior art corollaries for the claimed elements would permit an examiner to use the claimed invention itself as a blueprint for piecing together elements in the prior art to defeat the patentability of the claimed invention. Such an approach would be 'an illogical and inappropriate process by which to determine patentability.'")

Analysis of Examiner's Rejection

The cited references are each briefly discussed in relevant part, and then the rejection of each claim is addressed.

Barber discloses a method and apparatus for low power operation of an RF wireless modem, and so is relevant to the present application. Barber recites a method and apparatus for extending the battery life in a radio frequency wireless modem 100. (*Barber*, Abstract). The modem 100 is capable of operating in a normal power mode and a low power sleep mode. (*Barber*, Paragraph [0064]). The modem 100 also includes two timers 440, 445. (*Barber*, Paragraph [0074]). The first timer 440 determines the amount of time that the modem 100 attempts to register with a base station controller. (*Barber*, Paragraph [0074]). After the first timer 440 expires, the modem 100 enters the low power sleep mode. (*Barber*, Paragraph [0074]). The second timer 445 determines the amount of time that the modem 100 remains in the low power sleep mode. (*Barber*, Paragraph [0074]).

Sheynblat discloses a method and apparatus for providing reserve power in a cellular telephone, and appears to be cited for a discussion of multiple power modes. Sheynblat recites an apparatus for monitoring the battery level in a portable cellular transceiver. (*Sheynblat,* Abstract). A comparator compares the battery level to one or more thresholds, and the portable cellular transceiver enters at least one low power mode. (*Sheynblat,* Abstract and Paragraph [0029]). Various low power modes are described in *Sheynblat*, including low power modes that provide enough power for: placing a call of a limited duration, initiating a call, receiving a call, or placing an emergency call. (*Sheynblat,* Paragraph [0029]).

Dent discloses a two-way paging system and apparatus, and appears to be cited to address the

"timer" limitations of the present claims. Dent describes a pager with a "sleep mode".

First Ground of Rejection

Claims 1-26 were rejected under 35 U.S.C. §103(a) as being unpatentable over Barber *et al.* (US 2002/0106997, "Barber") combined with Sheynblat *et al.* (US 2002/0016189, "Sheynblat") in further view of Dent (USP 5,940,742, "Dent").

Claim 1

Claim 1 requires, among other limitations (emphasis added): "a power-saving apparatus capable of determining that said baseband section is idle and, in response to said determination, placing the RF transceiver in a first of a plurality of low-power modes by reducing a power supply voltage providing power to said baseband section; wherein the power-saving apparatus comprises a timer, and wherein only the timer is capable of receiving power when the RF transceiver is in another of the low-power modes".

Nothing in any art of reference, alone or in combination, teaches or suggests these limitations as required by claim 1.

Barber does not disclose a power-saving apparatus capable of determining that said baseband section is idle and, in response to said determination, placing the RF transceiver in a first of a plurality of low-power modes by reducing a power supply voltage providing power to said baseband section, as claimed. Examiner Anwah alleges that this is satisfied by Barber's Timer X (component 440) and a Timer Y (component 445). These are described in paragraph 0074:

> RF modem 400 further comprises two timers coupled to CPU 470, a Timer X (component 440) and a Timer Y (component 445) that are industry standard components and preferably software programmable. Timer X, a registration time timer, is set to a value that is the maximum time allowed to try to register modem 400 with a base station controller, i.e. the maximum time the unit will search for

> service in a non-coverage area before entering a low power sleep mode. Timer Y, a sleep time timer, is set to a value that is the time that modem 400 will operate in this low power sleep mode. Preferably, Timers X and Y are set during manufacturing of modem 400 using conventional methods. However, as understood by those of ordinary skill in the art, Timer X and Timer Y may be set, for instance, by a user of an attached host computing device.

There no teaching or suggestion that either (or both) of these timers are responsive to a determination that the baseband section of the receiver is idle. In fact, none of the art of record, alone or in combination, teaches or suggests determining that said baseband section is idle and, in response to said determination, placing the RF transceiver in a first of a plurality of low-power modes by reducing a power supply voltage providing power to said baseband section, as claimed. For this reason alone, all claims distinguish over any combination of cited references, and so all rejections should be reversed, and all claims should be allowed over all cited references.

Examiner Anwah appears to believe that the paragraph reproduced above describes determining that said baseband section is idle and, in response to said determination, placing the RF transceiver in a (single) low-power sleep mode. This is factually incorrect. Barber simply recites that the wireless modem may enter a low power sleep mode in response to a timer elapsing, although the timer itself may be associated with searching for service in a non-coverage area. Barber also recites that the wireless modem may leave the low power sleep mode in response to another timer elapsing. No cited reference teaches or suggests these specific limitations of the claims.

Further, Barber does not teach or suggest that the first of a plurality of low-power modes reduces a power supply voltage providing power to the baseband section. While Barber mentions a "low power sleep mode" at length, it only appears to teach powering down the receiver and associated circuitry. See, *e.g.*, paragraph 0014.

Barber does not teach, suggest, or even mention a plurality of low power modes, as claimed, or that this would be in any way desirable or even operable in Barber's system. Barber does not teach, suggest, or even mention that only timer 440 or only timer 445 receives power when the wireless modem operates in the low power sleep mode, as claimed, or that this would be in any way desirable or even operable in Barber's system. While Applicant recognizes that a "combination" rejection cannot necessarily be defeated by "attacking" each reference individually, it is important, in analyzing the rejection, to identify which references allegedly teach or suggest various limitations, and whether there is any teaching or suggestion to modify or combine the references to produce the claimed invention.

Sheynblat discusses various low power modes, including low power modes that provide enough power for: placing a call of a limited duration, initiating a call, receiving a call, or placing an emergency call. (*Sheynblat,* Paragraph [0029]). Sheynblat recites that the portable cellular transceiver may enter one or more low power modes in response to certain battery levels. Sheynblat does not teach, suggest, or even mention that only a timer receives power when the portable cellular transceiver operates in one of the low power modes, as claimed. In fact, Sheynblat does not appear to describe any timers in the portable cellular transceiver.

Examiner Anwah seeks to combine Barber with Sheyblat. Examiner Anwah stated that "With further respect to claim 1, Barber doesn't show the claimed first of a plurality of low-power modes. Nonetheless, Sheynblat reveals this limitation (see paragraph 0029). And so, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Barber with the modes disclosed in Sheynblat. This modification would have improved the efficiency of Barber by extending battery life in a radio frequency device as suggested by Barber." (June 1, 2006

Office Action, Page 3, Lines 13-20).

Examiner Anwah's alleged "motivation" to combine references does not meet the legal requirement to establish a finding of *prima facie* obviousness. Barber does not suggest the concept of extending battery life by using a plurality of low power modes. Barber is silent concerning using a plurality of low power modes. There is no teaching or suggestion at all in the references or in the knowledge of one of ordinary skill in the art that providing a plurality of low power modes would have improved the efficiency of Barber's system at all, or extended the battery life of Barber's device. Examiner Anwah makes no showing that Barber's dual-timer system could even be modified to accomplish multiple low-power modes, or how multiple low-power modes would operate in Barber's system. Further, the evidence of a motivation to combine prior art references is legally required to be clear and particular if the trap of "hindsight" is to be avoided. The supposed motivation to combine the *Barber* reference and the *Sheynblat* reference is said to be "improved efficiency." The Applicants respectfully submit that the supposed motivation of "improved efficiency" is not "clear and particular" and is therefore legally insufficient to serve as a valid motivation to combine the *Barber* reference and the *Sheynblat* reference.

Where an obviousness rejection is based on a combination of references, the Examiner must show that one of ordinary skill would have been motivated to combine those references. See *In re Nilssen*, 7 USPQ2d 1500 (Fed.Cir. 1988); *Panduit Corp. v. Dennison Mfg. Co.*, 1 USPQ2d 1593, 1597 (Fed.Cir. 1987); *ACS Hospital Systems v. Montefiore Hospital*, 220 USPQ 929 (Fed.Cir. 1984). "When prior art references require selective combination ... to render obvious a subsequent invention, there must be some reason for the combination other than the hindsight gained from the invention itself.... Something in the prior art as a whole must suggest the desirability, and thus the

obviousness, of making the combination." *Uniroyal, Inc. v. Rudkin-Wiley Corp.*, 5 USPQ2d 1434, 1438 (Fed.Cir. 1988), quoting *Interconnect Planning Corp. v. Feil*, 227 USPQ 543 (Fed.Cir. 1985), and *Lindemann Maschinenfabrik GmbH v. American Hoist & Derrick*, 221 USPQ 481 (Fed.Cir. 1984). "While [a reference] may be capable of being modified to run the way [the applicant's] apparatus is claimed, there must be a suggestion or motivation in the reference to do so. See *In re Gordon*, 733 F.2d 900, 902, 221 USPQ 1125, 1127 (Fed. Cir. 1984) ("The mere fact that the prior art could be so modified would not have made the modification obvious unless the prior art suggested the desirability of the modification."). *In re Mills*, 916 F.2d 680, 16 U.S.P.Q.2d 1430 (Fed.Cir. 1990).

The motivation to combine or modify must be specific to the actual teachings sought to be combined. "In holding an invention obvious in view of a combination of references, there must be some suggestion, motivation, or teaching in the prior art that would have led a person of ordinary skill in the art to select the references and combine them in the way that would produce the claimed invention." (*Karsten Mfg. Corp. v. Cleveland Golf Co.*, 242 F.3d 1376, 1385 (Fed. Cir. 2001) emphasis added). "When the references are in the same field as that of the applicant's invention, knowledge thereof is presumed. However, the test of whether it would have been obvious to select specific teachings and combine them as did the applicant must still be met by identification of some suggestion, teaching, or motivation in the prior art, arising from what the prior art would have taught a person of ordinary skill in the field of the invention." (*In re Dance*, 160 F.3d 1339, 1343 (Fed. Cir. 1998), emphasis added).

Examiner Anwah fails to provide any specific motivation, either in the cited references or in the knowledge of one or ordinary skill in the art, for one to make the specific combinations and

modifications proposed.

The fact that two references are concerned with the same general technical area (here, radio frequency wireless devices) does not without more provide a "clear and particular" motivation to combine the references. The Applicants respectfully submit that the alleged motivation to combine Barber and Sheynblat has been assumed by "hindsight" in light of the existence of the Applicants' invention.

Even if Barber could somehow be combined with Sheynblat, the combination still would not teach, suggest, or even hint at the Applicants' invention as set forth in this claim, as the combination still does not teach the limitation requiring that "only the timer is capable of receiving power when the RF transceiver is in another of the low-power modes." Examiner Anwah concedes this, stating that

> Further regarding claim 1, Barber mentions the power-saving apparatus comprises a timer (see Figure 4). Barber does not clearly state that only the timer is capable of receiving power when the RF transceiver is in another of the low-power modes. All the same, Dent shows this feature (see column 4). As a result, it would have been obvious at the time the invention was made to further modify the combination of Barber and Sheynblat with the circuitry of Dent. This modification would have improved the system's efficiency by extending battery life in a radio frequency device as suggested by Barber." (June 1, 2006 Office Action, Page 4, Lines 1-10).

The pager device in Dent does not operate continuously. The pager device in Dent only operates during certain predetermined time slots in a repetitive frame period. (*Dent*, Column 4, Lines 15-18). There is only one "sleep mode" for the Dent pager device. There is not a plurality of sleep modes in the Dent pager device. Therefore, the concept of a low-power timer in Dent relates only to a single "sleep mode" and not to a plurality of "sleep modes." Therefore, Dent does not and cannot

teach the concept that "only the timer is capable of receiving power when the RF transceiver is in another of the low-power modes." Dent does not teach, suggest or even hint at a timer system that is capable of operating with more than one "sleep mode."

Dent describes, in col. 4, lines 21-26, that "[t]he only circuitry that remains active in the sleep mode is a low-power timer driven by a low-current oscillator that determines when the pager will wake up to examine the paging station's transmissions for a possible message containing its address." Even were Barber (or the Barber/Sheynblat combination) modified to include this teaching, it appears that Barber would then be unable to operate as described.

Barber describes three possible timers, Timers X, Y, and Z. During the operation of Timers X and Z, according to Barber, the modem is attempting to register with a base station controller (see, *e.g.*, Fig. 7). It is clear that if either of Timers X or Z is "the only circuitry that remains active", then Barber's modem cannot function as described.

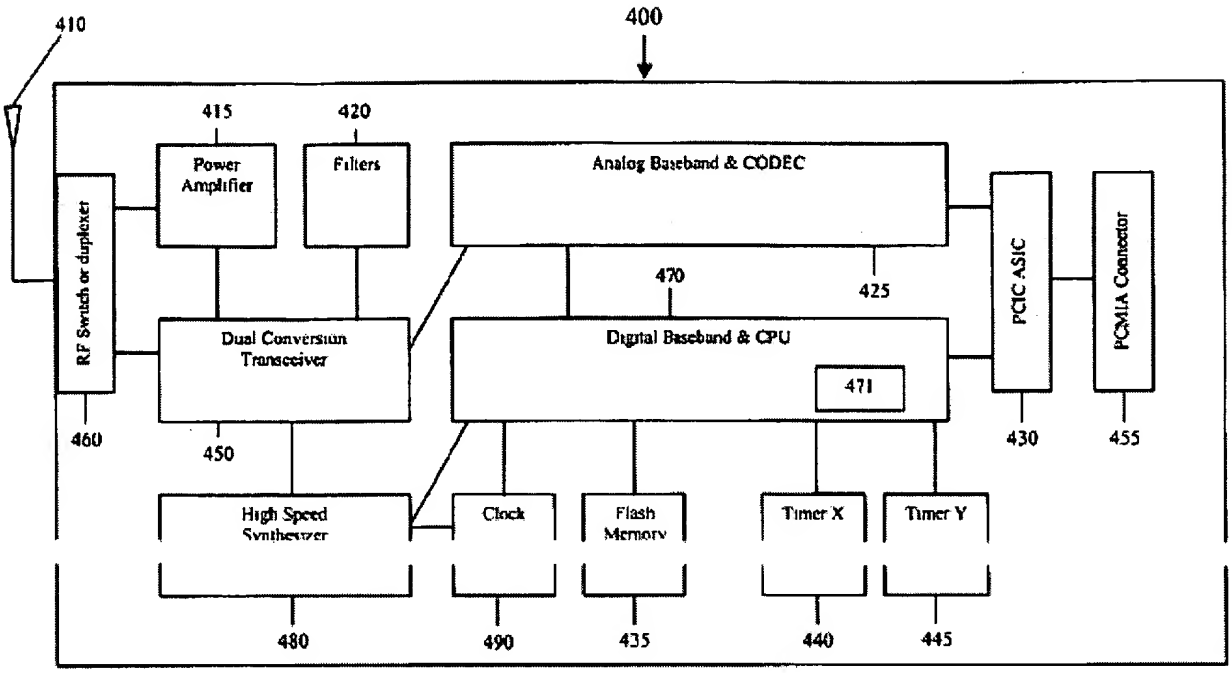
Timer Y runs when the modem is in a "low power sleep state". There is no teaching or suggestion in Barber of how this operates, or how the timer works, or that it is even possible for only Timer Y to remain active. Barber describes:

> **[0075]** Timer X and Timer Y are illustrated in FIG. 4 as separate components, but those skilled in the art will realize that these timers can be included within CPU 470. Moreover, Timer X and Timer Y may be may be started using any number of conventional means that may be located within each timer, within CPU 470 (as illustrated in FIG. 4 as component 471), or as a separate component within modem 400. Compared to the prior art shown in FIG. 1, by setting values for Timer X and Timer Y, a user can extend battery life over what would be experienced with the prior art in a non-coverage area, wherein the modem is on and trying to register the entire time.

It is clear that if Timer Y is "included within CPU 470", then this would obviate the claim limitation that only the timer is capable of receiving power. Barber shows Timer Y as a separate

component in Figure 4:

Fig. 4



As can be seen, Timer Y (445), is directly connected, and only connected to digital baseband & CPU modeule 470. Timer Y cannot be the only circuitry that receives power, as would be required by the proposed Barber/Sheynblat/Dent combination. This can be contrasted with Figure 1 of the instant application (reproduced above), in which the timer 105 is directly connected to battery 110, so that it can be the only element that receives power, in the appropriate low-power state.

It is therefore clear that the proposed Barber/Sheynblat/Dent combination still does not meet the limitations of this claim. Further, as the proposed combination would be inoperable as described above, there can be no proper motivation to combine the references to attempt to meet the claim limitations.

The rejection of this claim should be reversed.

Claim 2

Claim 2 requires, among other limitations, that the power-saving apparatus is further capable of reducing a power supply voltage providing power to said receive path circuitry in a second of the low-power modes.

As claim 2 depends from claim 1, the arguments above with regard to claim 1 apply here as well, and are hereby incorporated by reference.

Examiner Anwah alleges that this is taught by Barber. The only relevant teaching appears to be in the paragraph 0014 discussion of the CDPD specification, which indicates that "General operation of sleep mode permits an M-ES to disable or powerdown its receiver and associated circuitry." Examiner Anwah acknowledges that Barber does not teach a plurality of low power modes, referring again to Sheynblat, but does not show (and does not attempt to show) any teaching or suggestion that one low power mode should be shutting down the baseband section (as in claim 1), and another low power mode should shutting down the receive-path circuitry (as in this claim). To render this claim obvious, the Examiner must show that the proposed combination of references specifically teaches each of the different low power modes described.

The rejection of claim 2 should be reversed.

Claim 3

Claim 3 requires, among other limitations, that the power-saving apparatus further comprises a switch operable to switch said power supply voltage on and off to said receive path circuitry.

As claim 3 depends from claim 2, the arguments above with regard to claims 1 and 2 apply here as well, and are hereby incorporated by reference.

Examiner Anwah's entire rejection of this claim is "see Figure 4 of Barber." Figure 4 is reproduced above. No switch is shown.

The rejection of claim 3 should be reversed.

Claim 4

Claim 4 requires, among other limitations, that the power-saving apparatus is further capable of monitoring said incoming baseband signal during a time period when said power supply voltage is switched on to said receive path circuitry and determining if said incoming baseband signal is directed to said RF transceiver.

As claim 4 depends from claim 3, the arguments above with regard to claims 1-3 apply here as well, and are hereby incorporated by reference.

Examiner Anwah's entire rejection of this claim is "see Figure 4 of Barber." Figure 4 is reproduced above. Nothing in Barber, or any other art of record – and certainly not Barber's Figure 4 – teaches or suggests this feature of the power saving apparatus, as claimed.

The rejection of claim 4 should be reversed.

Claim 5

Claim 5 requires, among other limitations, that the power-saving apparatus, in response to a determination that said incoming baseband signal is directed to said RF transceiver, increases said power supply voltage providing power to said baseband section.

As claim 5 depends from claim 4, the arguments above with regard to claims 1-4 apply here as well, and are hereby incorporated by reference.

Examiner Anwah's entire rejection of this claim is "see Figure 4 of Barber." Figure 4 is reproduced above. Nothing in Barber, or any other art of record – and certainly not Barber's Figure 4 – teaches or suggests this feature of the power saving apparatus, as claimed.

The rejection of claim 5 should be reversed.

Claim 6

Claim 6 requires, among other limitations, that the power-saving apparatus, in response to a determination that said incoming baseband signal is directed to said RF transceiver, increases said power supply voltage providing power to said receive path circuitry.

As claim 6 depends from claim 4, the arguments above with regard to claims 1-4 apply here as well, and are hereby incorporated by reference.

Examiner Anwah's entire rejection of this claim is "see Figure 4 of Barber." Figure 4 is reproduced above. Nothing in Barber, or any other art of record – and certainly not Barber's Figure 4 – teaches or suggests this feature of the power saving apparatus, as claimed.

The rejection of claim 6 should be reversed.

Claim 7

Claim 7 requires, among other limitations, that the power-saving apparatus is further capable of reducing a power supply voltage providing power to said transmit path circuitry in a third of the low-power modes, and only the timer is capable of receiving power when the RF transceiver is in the third low-power mode.

As claim 7 depends from claim 6, the arguments above with regard to claims 1-4 and 6 apply here as well, and are hereby incorporated by reference.

Examiner Anwah alleges that this is taught by Barber. The only relevant teaching appears to be in the paragraph 0014 discussion of the CDPD specification, which indicates that "General operation of sleep mode permits an M-ES to disable or powerdown its receiver and associated circuitry." Examiner Anwah acknowledges that Barber does not teach a plurality of low power modes, referring again to Sheynblat, but does not show (and does not attempt to show) any teaching or suggestion that one low power mode should be shutting down the baseband section (as in claim 1), and another low power mode should shutting down the receive-path circuitry (as in claim 2), or any teaching or suggestion of a third low power mode should be shutting down the transmit path circuitry (as in this claim). To render this claim obvious, the Examiner must show that the proposed combination of references specifically teaches each of the different low power modes described.

The rejection of claim 7 should be reversed.

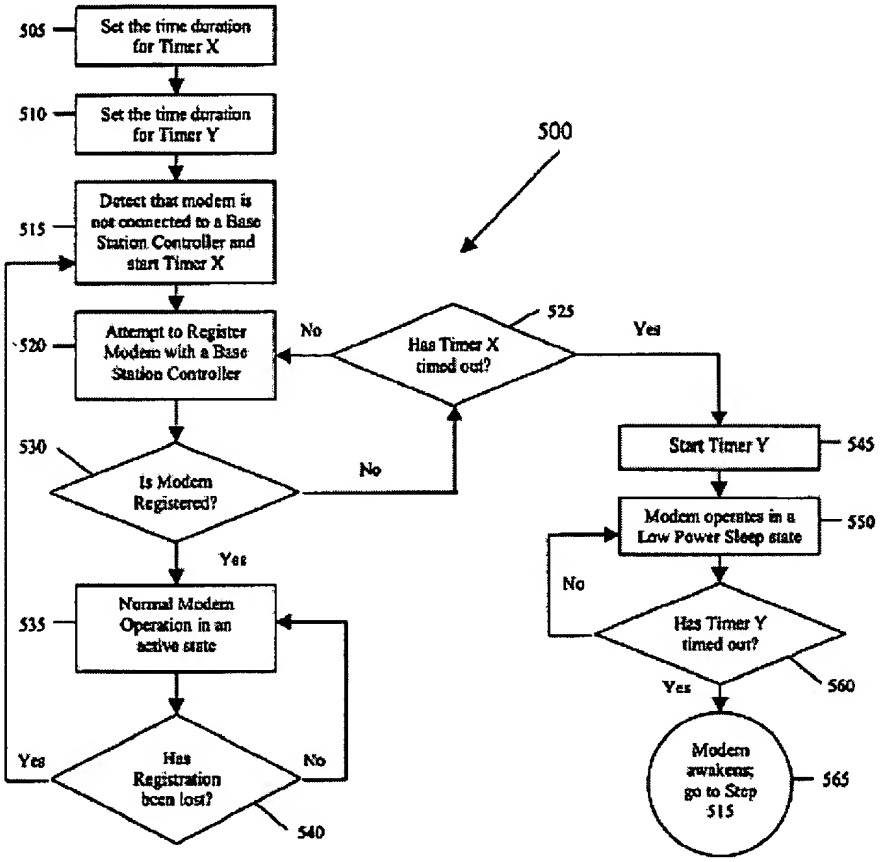
Claim 8

Claim 8 requires, among other limitations, that the power-saving apparatus, in response to a determination that said incoming baseband signal is directed to said RF transceiver, increases said power supply voltage providing power to said transmit path circuitry.

As claim 8 depends from claim 7, the arguments above with regard to claims 1-4, 6, and 7 apply here as well, and are hereby incorporated by reference.

Examiner Anwah's entire rejection of this claim is "see Figure 5 of Barber." Nothing in Barber, or any other art of record – and certainly not Barber's Figure 5 – teaches or suggests this feature of the power saving apparatus, as claimed. For the convenience of the Board, Barber's Figure 5 is reproduced below:

Fig. 5



The rejection of claim 8 should be reversed.

Claim 9

Claim 9 requires, among other limitations, that the power-saving apparatus is further capable of reducing a power supply voltage providing power to said transmit path circuitry in a second of the low-power modes.

As claim 9 depends from claim 1, the arguments above with regard to claim 1 apply here as well, and are hereby incorporated by reference.

Nothing in Barber, or any other art of record teaches or suggests this feature of the power saving apparatus, as claimed. Examiner Anwah makes no attempt to show where this teaching might be found in Barber or any other reference.

The rejection of claim 9 should be reversed.

Claim 10

Claim 10 requires, among other limitations, that the power-saving apparatus is further capable of monitoring said incoming baseband signal and determining if said incoming baseband signal is directed to said RF transceiver.

As claim 10 depends from claim 9, the arguments above with regard to claims 1 and 9 apply here as well, and are hereby incorporated by reference.

Examiner Anwah's entire rejection of this claim is "see Figure 5 of Barber." Nothing in Barber, or any other art of record – and certainly not Barber's Figure 5 – teaches or suggests this feature of the power saving apparatus, as claimed.

The rejection of claim 10 should be reversed.

Claim 11

Claim 11 requires, among other limitations, that the power-saving apparatus, in response to a determination that said incoming baseband signal is directed to said RF transceiver, increases said power supply voltage providing power to said transmit path circuitry.

As claim 11 depends from claim 10, the arguments above with regard to claims 1, 9, and 10 apply here as well, and are hereby incorporated by reference.

Examiner Anwah's entire rejection of this claim is "see Figure 5 of Barber." Nothing in Barber, or any other art of record – and certainly not Barber's Figure 5 – teaches or suggests this feature of the power saving apparatus, as claimed.

The rejection of claim 11 should be reversed.

Claim 12

Claim 12 requires, among other limitations, that the power-saving apparatus, in response to said determination that said incoming baseband signal is directed to said RF transceiver, increases said power supply voltage providing power to said baseband section.

As claim 12 depends from claim 11, the arguments above with regard to claims 1, and 9- 11 apply here as well, and are hereby incorporated by reference.

Examiner Anwah's entire rejection of this claim is "see Figure 5 of Barber." Nothing in Barber, or any other art of record – and certainly not Barber's Figure 5 – teaches or suggests this feature of the power saving apparatus, as claimed. Certainly there is no teaching of powering up the baseband section as opposed to the transmit or receive sections.

The rejection of claim 12 should be reversed.

Claim 13

Claim 13 requires

> A method of reducing power consumption in a radio frequency transceiver comprising: 1) receive path circuitry for receiving and down-converting an incoming RF signal to produce an incoming baseband signal; 2) transmit path circuitry for receiving and up-converting an outgoing baseband signal to produce an outgoing RF signal; and 3) a baseband section comprising baseband circuitry for receiving and processing the incoming baseband signal and generating the outgoing baseband signal, the method comprising the steps of:
>
> determining that the baseband section is idle;
>
> in response to the determination that the baseband section is idle, placing the RF transceiver in a first of a plurality of low-power modes by reducing a power supply voltage providing power to the baseband section; and

> in another of the low power modes, supplying power only to a timer in the radio frequency transceiver, wherein the timer is capable of selectively increasing the power provided to at least the receive path circuitry.

Nothing in any art of reference, alone or in combination, teaches or suggests these limitations as required by claim 13.

Barber does not disclose a power-saving apparatus capable of determining that said baseband section is idle and, in response to said determination, placing the RF transceiver in a first of a plurality of low-power modes by reducing a power supply voltage providing power to the baseband section, as claimed. Examiner Anwah alleges that this is satisfied by Barber's Timer X (component 440) and a Timer Y (component 445). These are described in paragraph 0074:

> RF modem 400 further comprises two timers coupled to CPU 470, a Timer X (component 440) and a Timer Y (component 445) that are industry standard components and preferably software programmable. Timer X, a registration time timer, is set to a value that is the maximum time allowed to try to register modem 400 with a base station controller, i.e. the maximum time the unit will search for service in a non-coverage area before entering a low power sleep mode. Timer Y, a sleep time timer, is set to a value that is the time that modem 400 will operate in this low power sleep mode. Preferably, Timers X and Y are set during manufacturing of modem 400 using conventional methods. However, as understood by those of ordinary skill in the art, Timer X and Timer Y may be set, for instance, by a user of an attached host computing device.

There no teaching or suggestion that either (or both) of these timers are responsive to a determination that the baseband section of the receiver is idle. In fact, none of the art of record, alone or in combination, teaches or suggests determining that said baseband section is idle and, in response to said determination, placing the RF transceiver in a first of a plurality of low-power modes by reducing a power supply voltage providing power to said baseband section, as claimed.

For this reason alone, all claims distinguish over any combination of cited references, and so all rejections should be reversed, and all claims should be allowed over all cited references.

Examiner Anwah appears to believe that the paragraph reproduced above describes determining that said baseband section is idle and, in response to said determination, placing the RF transceiver in a (single) low-power sleep mode. This is factually incorrect. Barber simply recites that the wireless modem may enter a low power sleep mode in response to a timer elapsing, although the timer itself may be associated with searching for service in a non-coverage area. Barber also recites that the wireless modem may leave the low power sleep mode in response to another timer elapsing. No cited reference teaches or suggests these specific limitations of the claims.

Further, Barber does not teach or suggest that the first of a plurality of low-power modes reduces a power supply voltage providing power to the baseband section. While Barber mentions a "low power sleep mode" at length, it only appears to teach powering down the receiver and associated circuitry. See, *e.g.*, paragraph 0014.

Barber does not teach, suggest, or even mention a plurality of low power modes, as claimed, or that this would be in any way desirable or even operable in Barber's system. Barber does not teach, suggest, or even mention that only timer 440 or only timer 445 receives power when the wireless modem operates in the low power sleep mode, as claimed, or that this would be in any way desirable or even operable in Barber's system. While Applicant recognizes that a "combination" rejection cannot necessarily be defeated by "attacking" each reference individually, it is important, in analyzing the rejection, to identify which references allegedly teach or suggest various limitations, and whether there is any teaching or suggestion to modify or combine the references to produce the claimed invention.

Sheynblat discusses various low power modes, including low power modes that provide enough power for: placing a call of a limited duration, initiating a call, receiving a call, or placing an emergency call. (*Sheynblat,* Paragraph [0029]). Sheynblat recites that the portable cellular transceiver may enter one or more low power modes in response to certain battery levels. Sheynblat does not teach, suggest, or even mention that only a timer receives power when the portable cellular transceiver operates in one of the low power modes, as claimed. In fact, Sheynblat does not appear to describe any timers in the portable cellular transceiver.

Examiner Anwah seeks to combine Barber with Sheyblat. Examiner Anwah's only alleged "motivation" to combine references does not meet the legal requirement to establish a finding of *prima facie* obviousness. Barber does not suggest the concept of extending battery life by using a plurality of low power modes. Barber is silent concerning using a plurality of low power modes. There is no teaching or suggestion at all in the references or in the knowledge of one of ordinary skill in the art that providing a plurality of low power modes would have improved the efficiency of Barber's system at all, or extended the battery life of Barber's device. Examiner Anwah makes no showing that Barber's dual-timer system could even be modified to accomplish multiple low-power modes, or how multiple low-power modes would operate in Barber's system. Further, the evidence of a motivation to combine prior art references is legally required to be clear and particular if the trap of "hindsight" is to be avoided. The supposed motivation to combine the *Barber* reference and the *Sheynblat* reference is said to be "improved efficiency." The Applicants respectfully submit that the supposed motivation of "improved efficiency" is not "clear and particular" and is therefore legally insufficient to serve as a valid motivation to combine the *Barber* reference and the *Sheynblat* reference.

Examiner Anwah fails to provide any specific motivation, either in the cited references or in the knowledge of one or ordinary skill in the art, for one to make the specific combinations and modifications proposed.

The fact that two references are concerned with the same general technical area (here, radio frequency wireless devices) does not without more provide a "clear and particular" motivation to combine the references. The Applicants respectfully submit that the alleged motivation to combine Barber and Sheynblat has been assumed by "hindsight" in light of the existence of the Applicants' invention.

Even if Barber could somehow be combined with Sheynblat, the combination still would not teach, suggest, or even hint at the Applicants' invention as set forth in this claim, as the combination still does not teach the limitation requiring that "only the timer is capable of receiving power when the RF transceiver is in another of the low-power modes." Examiner Anwah instead references Dent. Dent does not teach, suggest or even hint at a timer system that is capable of operating with more than one "sleep mode."

Dent describes, in col. 4, lines 21-26, that "[t]he only circuitry that remains active in the sleep mode is a low-power timer driven by a low-current oscillator that determines when the pager will wake up to examine the paging station's transmissions for a possible message containing its address." Even were Barber (or the Barber/Sheynblat combination) modified to include this teaching, it appears that Barber would then be unable to operate as described.

Barber describes three possible timers, Timers X, Y, and Z. During the operation of Timers X and Z, according to Barber, the modem is attempting to register with a base station controller (see, *e.g.*, Fig. 7). It is clear that if either of Timers X or Z is "the only circuitry that remains active", then

Barber's modem cannot function as described.

Timer Y runs when the modem is in a "low power sleep state". There is no teaching or suggestion in Barber of how this operates, or how the timer works, or that it is even possible for only Timer Y to remain active. It is clear that if Timer Y is "included within CPU 470", then this would obviate the claim limitation that only the timer is capable of receiving power. Timer Y (445), is directly connected, and only connected to digital baseband & CPU modeule 470. Timer Y cannot be the only circuitry that receives power, as would be required by the proposed Barber/Sheynblat/Dent combination. This can be contrasted with Figure 1 of the instant application (reproduced above), in which the timer 105 is directly connected to battery 110, so that it can be the only element that receives power, in the appropriate low-power state.

Further, no art of record teaches or suggests that the timer itself is capable of selectively increasing the power provided to at least the receive path circuitry, as required by Claim 13. Examiner Anwah has never addressed this limitation at all.

It is therefore clear that the proposed Barber/Sheynblat/Dent combination still does not meet the limitations of this claim. Further, as the proposed combination would be inoperable as described above, there can be no proper motivation to combine the references to attempt to meet the claim limitations.

The rejection of this claim should be reversed.

Claim 14

Claim 14 requires, among other limitations, reducing a power supply voltage providing power to the receive path circuitry in a second of the low-power modes.

As claim 14 depends from claim 13, the arguments above with regard to claim 13 apply here as well, and are hereby incorporated by reference.

Examiner Anwah alleges that this is taught by Barber. The only relevant teaching appears to be in the paragraph 0014 discussion of the CDPD specification, which indicates that "General operation of sleep mode permits an M-ES to disable or powerdown its receiver and associated circuitry." Examiner Anwah acknowledges that Barber does not teach a plurality of low power modes, referring again to Sheynblat, but does not show (and does not attempt to show) any teaching or suggestion that one low power mode should be shutting down the baseband section (as in claim 1), and another low power mode should shutting down the receive-path circuitry (as in this claim). To render this claim obvious, the Examiner must show that the proposed combination of references specifically teaches each of the different low power modes described.

The rejection of claim 14 should be reversed.

Claim 15

Claim 15 requires, among other limitations, switching the power supply voltage on and off to the receive path circuitry.

As claim 15 depends from claim 14, the arguments above with regard to claims 13 and 14 apply here as well, and are hereby incorporated by reference.

Examiner Anwah's entire rejection of this claim is "see Figure 5 of Barber." Nothing in Figure 5 says anything at all about receive path circuitry.

The rejection of claim 15 should be reversed.

Claim 16

Claim 16 requires, among other limitations, monitoring the incoming baseband signal during a time period when the power supply voltage is switched on to the receive path circuitry; and determining if the incoming baseband signal is directed to the RF transceiver.

As claim 16 depends from claim 15, the arguments above with regard to claims 13-15 apply here as well, and are hereby incorporated by reference.

Examiner Anwah's entire rejection of this claim is "see Figure 5 of Barber." Nothing in Figure 5 addresses this limitation at all.

The rejection of claim 16 should be reversed.

Claim 17

Claim 17 requires, among other limitations, the step, in response to a determination that the incoming baseband signal is directed to the RF transceiver, of increasing the power supply voltage providing power to the baseband section.

As claim 17 depends from claim 16, the arguments above with regard to claims 13-16 apply here as well, and are hereby incorporated by reference.

Examiner Anwah's entire rejection of this claim is "see Figure 5 of Barber." Nothing in Figure 5 addresses this limitation at all.

The rejection of claim 17 should be reversed.

Claim 18

Claim 18 requires, among other limitations, the step, in response to a determination that the incoming baseband signal is directed to the RF transceiver, of increasing the power supply voltage providing power to the receive path circuitry.

As claim 18 depends from claim 18, the arguments above with regard to claims 13-18 apply here as well, and are hereby incorporated by reference.

Examiner Anwah's entire rejection of this claim is "see Figure 5 of Barber." Nothing in Figure 5 addresses this limitation at all.

The rejection of claim 18 should be reversed.

Claim 19

Claim 19 requires, among other limitations, reducing a power supply voltage providing power to the transmit path circuitry in a third of the low-power modes; and wherein only the timer is capable of receiving power when the RF transceiver is in the third low-power mode.

As claim 19 depends from claim 18, the arguments above with regard to claims 13-15 and 18 apply here as well, and are hereby incorporated by reference.

Examiner Anwah alleges that this is taught by Barber. The only relevant teaching appears to be in the paragraph 0014 discussion of the CDPD specification, which indicates that "General operation of sleep mode permits an M-ES to disable or powerdown its receiver and associated circuitry." Examiner Anwah acknowledges that Barber does not teach a plurality of low power modes, referring again to Sheynblat, but does not show (and does not attempt to show) any teaching or suggestion that one low power mode should be shutting down the baseband section (as in claim 1), and another low power mode should shutting down the receive-path circuitry (as in claim 2), or any teaching or suggestion of a third low power mode should be shutting down the transmit path circuitry (as in this claim). To render this claim obvious, the Examiner must show that the proposed combination of references specifically teaches each of the different low power modes described.

The rejection of claim 19 should be reversed.

Claim 20

Claim 20 requires, among other limitations, the steps, in response to a determination that the incoming baseband signal is directed to the RF transceiver, of increasing the power supply voltage providing power to the transmit path circuitry.

As claim 20 depends from claim 19, the arguments above with regard to claims 13-16, 18 and 19 apply here as well, and are hereby incorporated by reference.

Examiner Anwah's entire rejection of this claim is "see Figure 5 of Barber." Nothing in Figure 5 addresses this limitation at all.

The rejection of claim 20 should be reversed.

Claim 21

Claim 21 requires, among other limitations, the step of reducing a power supply voltage providing power to the transmit path circuitry in a second of the low-power modes.

As claim 21 depends from claim 13, the arguments above with regard to claims 13 apply here as well, and are hereby incorporated by reference.

Nothing in the art of record addresses reducing the power to the transmit path circuitry in

particular, or that this particular function should be one of a plurality of low power modes. Examiner Anwah does not and cannot show this specific teaching in the art.

The rejection of claim 21 should be reversed.

Claim 22

Claim 22 requires, among other limitations, the steps of monitoring the incoming baseband signal and determining if the incoming baseband signal is directed to the RF transceiver.

As claim 22 depends from claim 21, the arguments above with regard to claims 13 and 21apply here as well, and are hereby incorporated by reference.

Examiner Anwah's entire rejection of this claim is "see Figure 5 of Barber." Nothing in Figure 5 addresses this limitation at all.

The rejection of claim 22 should be reversed.

Claim 23

Claim 23 requires, among other limitations, the step, in response to a determination that the incoming baseband signal is directed to the RF transceiver, of increasing the power supply voltage providing power to the transmit path circuitry.

As claim 23 depends from claim 22, the arguments above with regard to claims 13 and 21-22 apply here as well, and are hereby incorporated by reference.

Examiner Anwah's entire rejection of this claim is "see Figure 5 of Barber." Nothing in Figure 5 addresses this limitation at all.

The rejection of claim 23 should be reversed.

Claim 24

Claim 24 requires, among other limitations, the step, in response to the determination that the incoming baseband signal is directed to the RF transceiver, of increasing the power supply voltage providing power to the baseband section.

As claim 24 depends from claim 23, the arguments above with regard to claims 13 and 21-23 apply here as well, and are hereby incorporated by reference.

Examiner Anwah's entire rejection of this claim is "see Figure 5 of Barber." Nothing in Figure 5 addresses this limitation at all.

The rejection of claim 24 should be reversed.

Claim 25

Claim 25 requires

> A radio frequency (RF) transceiver, comprising:
> receive path circuitry capable of receiving and down-converting an incoming RF signal to thereby produce an incoming baseband signal;
> transmit path circuitry capable of receiving and up-converting an outgoing baseband signal to thereby produce an outgoing RF signal;
> baseband circuitry capable of receiving and processing the incoming baseband signal and capable of generating the outgoing baseband signal; and
> a power-saving apparatus capable of:
>> reducing power provided to the baseband circuitry in a first low-power mode;
>> reducing power provided to the baseband circuitry and to one of the transmit path circuitry and the receive path circuitry in a second low-power mode;
>> reducing power provided to the baseband circuitry, the transmit path circuitry, and the receive path circuitry in a third low-power mode; and
>> wherein the power-saving apparatus comprises a timer, and wherein only the timer is capable of receiving power when the RF transceiver is in the third low-power mode.

Nothing in any art of reference, alone or in combination, teaches or suggests these limitations as required by claim 25.

Barber does not teach or suggest that the first of a plurality of low-power modes reduces a power supply voltage providing power to the baseband section. While Barber mentions a "low power sleep mode" at length, it only appears to teach powering down the receiver and associated circuitry. See, *e.g.*, paragraph 0014.

Barber does not teach, suggest, or even mention a plurality of low power modes, as claimed, or that this would be in any way desirable or even operable in Barber's system. Barber does not

teach, suggest, or even mention that only timer 440 or only timer 445 receives power when the wireless modem operates in the low power sleep mode, as claimed, or that this would be in any way desirable or even operable in Barber's system. While Applicant recognizes that a "combination" rejection cannot necessarily be defeated by "attacking" each reference individually, it is important, in analyzing the rejection, to identify which references allegedly teach or suggest various limitations, and whether there is any teaching or suggestion to modify or combine the references to produce the claimed invention.

Sheynblat discusses various low power modes, including low power modes that provide enough power for: placing a call of a limited duration, initiating a call, receiving a call, or placing an emergency call. (*Sheynblat,* Paragraph [0029]). Sheynblat recites that the portable cellular transceiver may enter one or more low power modes in response to certain battery levels. Sheynblat does not teach, suggest, or even mention that only a timer receives power when the portable cellular transceiver operates in one of the low power modes, as claimed. In fact, Sheynblat does not appear to describe any timers in the portable cellular transceiver.

More importantly, in the context of this claim, Sheynblat does not teach or suggest the three specific low power modes required by claim 25. Examiner Anwah makes no attempt to show any such teaching.

Examiner Anwah seeks to combine Barber with Sheyblat. Examiner Anwah's only alleged "motivation" to combine references does not meet the legal requirement to establish a finding of *prima facie* obviousness.

Examiner Anwah fails to provide any specific motivation, either in the cited references or in the knowledge of one or ordinary skill in the art, for one to make the specific combinations and

modifications proposed.

The fact that two references are concerned with the same general technical area (here, radio frequency wireless devices) does not without more provide a "clear and particular" motivation to combine the references. The Applicants respectfully submit that the alleged motivation to combine Barber and Sheynblat has been assumed by "hindsight" in light of the existence of the Applicants' invention.

Even if Barber could somehow be combined with Sheynblat, the combination still would not teach, suggest, or even hint at the Applicants' invention as set forth in this claim, as the combination still does not teach the limitation requiring that "only the timer is capable of receiving power when the RF transceiver is in the third low-power mode." Examiner Anwah instead references Dent. Dent does not teach, suggest or even hint at a timer system that is capable of operating with more than one "sleep mode."

Dent describes, in col. 4, lines 21-26, that "[t]he only circuitry that remains active in the sleep mode is a low-power timer driven by a low-current oscillator that determines when the pager will wake up to examine the paging station's transmissions for a possible message containing its address." Even were Barber (or the Barber/Sheynblat combination) modified to include this teaching, it appears that Barber would then be unable to operate as described.

Barber describes three possible timers, Timers X, Y, and Z. During the operation of Timers X and Z, according to Barber, the modem is attempting to register with a base station controller (see, *e.g.*, Fig. 7). It is clear that if either of Timers X or Z is "the only circuitry that remains active", then Barber's modem cannot function as described.

Timer Y runs when the modem is in a "low power sleep state". There is no teaching or suggestion in Barber of how this operates, or how the timer works, or that it is even possible for only Timer Y to remain active. It is clear that if Timer Y is "included within CPU 470", then this would obviate the claim limitation that only the timer is capable of receiving power. Timer Y (445), is directly connected, and only connected to digital baseband & CPU modeule 470. Timer Y cannot be the only circuitry that receives power, as would be required by the proposed Barber/Sheynblat/Dent combination. This can be contrasted with Figure 1 of the instant application (reproduced above), in which the timer 105 is directly connected to battery 110, so that it can be the only element that receives power, in the appropriate low-power state.

Further, no art of record teaches or suggests that the timer itself is capable of selectively increasing the power provided to at least the receive path circuitry, as required by Claim 13. Examiner Anwah has never addressed this limitation at all.

It is therefore clear that the proposed Barber/Sheynblat/Dent combination still does not meet the limitations of this claim. Further, as the proposed combination would be inoperable as described above, there can be no proper motivation to combine the references to attempt to meet the claim limitations.

The rejection of this claim should be reversed.

Claim 26

Claim 24 requires, among other limitations, that the power-saving apparatus is further capable of periodically increasing the power provided to at least the receive path circuitry using the timer when in the third low-power mode.

As claim 26 depends from claim 25, the arguments above with regard to claim 25 apply here as well, and are hereby incorporated by reference.

Nothing in the art of record teaches or suggests that the power-saving apparatus and timer are capable of performing as claimed.

The rejection of claim 26 should be reversed.

Grouping of Claims

The claims on appeal do not stand or fall together, as may be seen from the arguments set forth below. Each claim has been argued separately under a separate subheading, and each claim should be considered separately. While the applicant recognizes that a formal statement regarding the grouping of claims is no longer required, each claim should be considered separately; or at the very least each claim which is argued separately in the preceding sections of this brief should be considered separately. Argument: The fact that the claims use different formulations (as detailed above) and/or have been argued separately, shows that, if their patentability is not considered separately, any adverse decision would show that the limitations of some claims had been unfairly ignored.

REQUESTED RELIEF

The Board is respectfully requested to reverse the outstanding rejections and return this application to the Examiner for allowance.

Respectfully submitted,
MUNCK BUTRUS, P.C.

Date: March 26, 2007

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of	:	LAWRENCE J. MALONE, ET AL.
U.S. Serial No.	:	09/938,209
Filed	:	August 23, 2001
For	:	APPARATUS AND METHOD FOR REDUCING POWER CONSUMPTION IN WIRELESS RF SYSTEMS
Group No.	:	2614
Examiner	:	Olisa Anwah

APPENDIX A -

Text of Claims on Appeal

1. (Previously Presented) A radio frequency (RF) transceiver comprising:

a radio frequency (RF) modem section comprising:

receive path circuitry capable of receiving and down-converting an incoming RF signal to thereby produce an incoming baseband signal; and

transmit path circuitry capable of receiving and up-converting an outgoing baseband signal to thereby produce an outgoing RF signal;

a baseband section comprising baseband circuitry capable of receiving and processing said incoming baseband signal and capable of generating said outgoing baseband signal; and

a power-saving apparatus capable of determining that said baseband section is idle and, in response to said determination, placing the RF transceiver in a first of a plurality of low-power modes by reducing a power supply voltage providing power to said baseband section;

wherein the power-saving apparatus comprises a timer, and wherein only the timer is capable of receiving power when the RF transceiver is in another of the low-power modes.

2. (Previously Presented) The RF transceiver as set forth in Claim 1 wherein said power-saving apparatus is further capable of reducing a power supply voltage providing power to said receive path circuitry in a second of the low-power modes.

3. (Previously Presented) The RF transceiver as set forth in Claim 2 wherein said power-saving apparatus further comprises a switch operable to switch said power supply voltage on and off to said receive path circuitry.

4. (Original) The RF transceiver as set forth in Claim 3 wherein said power-saving apparatus is further capable of monitoring said incoming baseband signal during a time period when said power supply voltage is switched on to said receive path circuitry and determining if said incoming baseband signal is directed to said RF transceiver.

5. (Original) The RF transceiver as set forth in Claim 4 wherein said power-saving apparatus, in response to a determination that said incoming baseband signal is directed to said RF transceiver, increases said power supply voltage providing power to said baseband section.

6. (Original) The RF transceiver as set forth in Claim 4 wherein said power-saving apparatus, in response to a determination that said incoming baseband signal is directed to said RF transceiver, increases said power supply voltage providing power to said receive path circuitry.

7. (Previously Presented) The RF transceiver as set forth in Claim 6 wherein said power-saving apparatus is further capable of reducing a power supply voltage providing power to said transmit path circuitry in a third of the low-power modes; and

wherein only the timer is capable of receiving power when the RF transceiver is in the third low-power mode.

8. (Original) The RF transceiver as set forth in Claim 7 wherein said power-saving apparatus, in response to a determination that said incoming baseband signal is directed to said RF transceiver, increases said power supply voltage providing power to said transmit path circuitry.

9. (Previously Presented) The RF transceiver as set forth in Claim 1 wherein said power-saving apparatus is further capable of reducing a power supply voltage providing power to said transmit path circuitry in a second of the low-power modes.

10. (Original) The RF transceiver as set forth in Claim 9 wherein said power-saving apparatus is further capable of monitoring said incoming baseband signal and determining if said incoming baseband signal is directed to said RF transceiver.

11. (Original) The RF transceiver as set forth in Claim 10 wherein said power-saving apparatus, in response to a determination that said incoming baseband signal is directed to

said RF transceiver, increases said power supply voltage providing power to said transmit path circuitry.

12. (Original) The RF transceiver as set forth in Claim 11 wherein said power-saving apparatus, in response to said determination that said incoming baseband signal is directed to said RF transceiver, increases said power supply voltage providing power to said baseband section.

13. (Previously Presented) A method of reducing power consumption in a radio frequency transceiver comprising: 1) receive path circuitry for receiving and down-converting an incoming RF signal to produce an incoming baseband signal; 2) transmit path circuitry for receiving and up-converting an outgoing baseband signal to produce an outgoing RF signal; and 3) a baseband section comprising baseband circuitry for receiving and processing the incoming baseband signal and generating the outgoing baseband signal, the method comprising the steps of:

determining that the baseband section is idle;

in response to the determination that the baseband section is idle, placing the RF transceiver in a first of a plurality of low-power modes by reducing a power supply voltage providing power to the baseband section; and

in another of the low power modes, supplying power only to a timer in the radio frequency transceiver, wherein the timer is capable of selectively increasing the power provided to at least the receive path circuitry.

14. (Previously Presented) The method as set as set forth in Claim 13 further comprising the step of reducing a power supply voltage providing power to the receive path circuitry in a second of the low-power modes.

15. (Original) The method as set forth in Claim 14 further comprising the step of switching the power supply voltage on and off to the receive path circuitry.

16. (Original) The method as set forth in Claim 15 further comprising the steps of:

monitoring the incoming baseband signal during a time period when the power supply voltage is switched on to the receive path circuitry; and

determining if the incoming baseband signal is directed to the RF transceiver.

17. (Original) The method as set forth in Claim 16 further comprising the step, in response to a determination that the incoming baseband signal is directed to the RF transceiver, of increasing the power supply voltage providing power to the baseband section.

18. (Original) The method as set forth in Claim 16 further comprising the step, in response to a determination that the incoming baseband signal is directed to the RF transceiver, of increasing the power supply voltage providing power to the receive path circuitry.

19. (Previously Presented) The method as set forth in Claim 18 further comprising the step of reducing a power supply voltage providing power to the transmit path circuitry in a third of the low-power modes; and

wherein only the timer is capable of receiving power when the RF transceiver is in the third low-power mode.

20. (Original) The method as set forth in Claim 19 further comprising the steps, in response to a determination that the incoming baseband signal is directed to the RF transceiver, of increasing the power supply voltage providing power to the transmit path circuitry.

21. (Previously Presented) The method as set forth in Claim 13 further comprising the step of reducing a power supply voltage providing power to the transmit path circuitry in a second of the low-power modes.

22. (Original) The method as set forth in Claim 21 further comprising the steps of monitoring the incoming baseband signal and determining if the incoming baseband signal is directed to the RF transceiver.

23. (Original) The method as set forth in Claim 22 further comprising the step, in response to a determination that the incoming baseband signal is directed to the RF transceiver, of increasing the power supply voltage providing power to the transmit path circuitry.

24. (Original) The method as set forth in Claim 23 further comprising the step, in response to the determination that the incoming baseband signal is directed to the RF transceiver, of increasing the power supply voltage providing power to the baseband section.

25. (Previously Presented) A radio frequency (RF) transceiver, comprising:

receive path circuitry capable of receiving and down-converting an incoming RF signal to thereby produce an incoming baseband signal;

transmit path circuitry capable of receiving and up-converting an outgoing baseband signal to thereby produce an outgoing RF signal;

baseband circuitry capable of receiving and processing the incoming baseband signal and capable of generating the outgoing baseband signal; and

a power-saving apparatus capable of:

reducing power provided to the baseband circuitry in a first low-power mode;

reducing power provided to the baseband circuitry and to one of the transmit path circuitry and the receive path circuitry in a second low-power mode;

reducing power provided to the baseband circuitry, the transmit path circuitry, and the receive path circuitry in a third low-power mode; and

wherein the power-saving apparatus comprises a timer, and wherein only the timer is capable of receiving power when the RF transceiver is in the third low-power mode.

26. (Previously Presented) The RF transceiver as set forth in Claim 25, wherein the power-saving apparatus is further capable of periodically increasing the power provided to at least the receive path circuitry using the timer when in the third low-power mode.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of	:	LAWRENCE J. MALONE, ET AL.
U.S. Serial No.	:	09/938,209
Filed	:	August 23, 2001
For	:	APPARATUS AND METHOD FOR REDUCING POWER CONSUMPTION IN WIRELESS RF SYSTEMS
Group No.	:	2614
Examiner	:	Olisa Anwah

APPENDIX B -
Copy of Formal Drawings

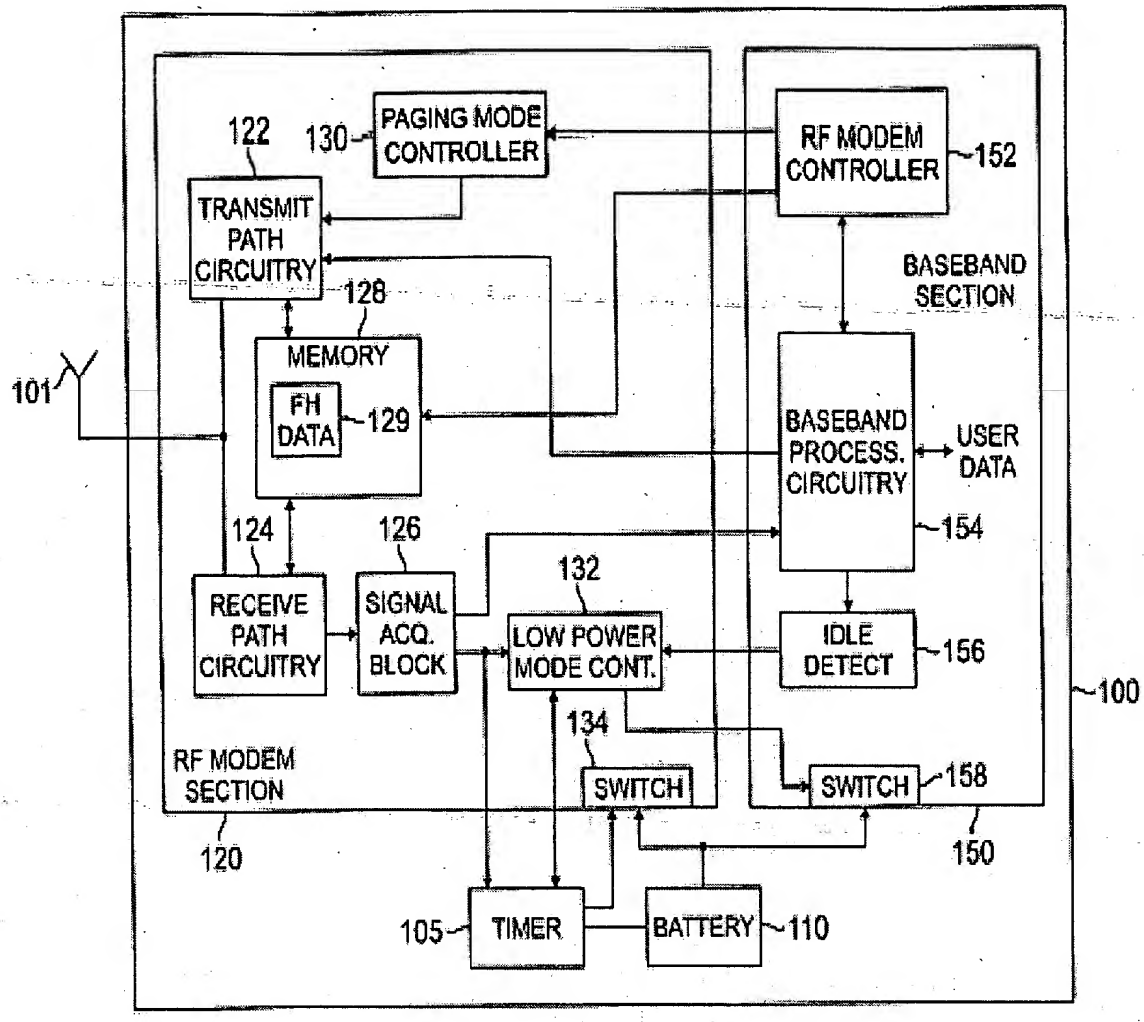

FIG. 1

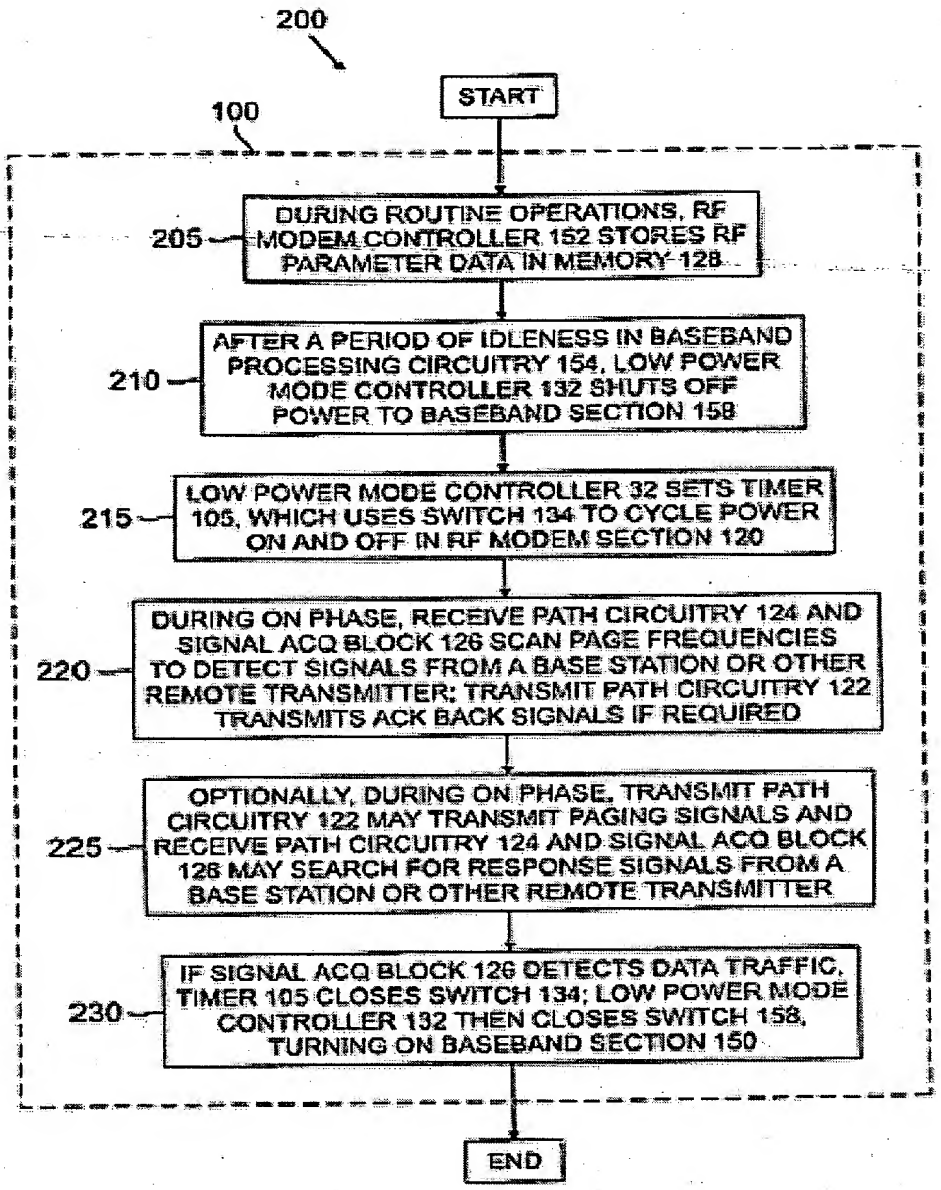
200
100
START
205
DURING ROUTINE OPERATIONS, RF MODEM CONTROLLER 152 STORES RF PARAMETER DATA IN MEMORY 128
210
AFTER A PERIOD OF IDLENESS IN BASEBAND PROCESSING CIRCUITRY 154, LOW POWER MODE CONTROLLER 132 SHUTS OFF POWER TO BASEBAND SECTION 158
215
LOW POWER MODE CONTROLLER 32 SETS TIMER 105, WHICH USES SWITCH 134 TO CYCLE POWER ON AND OFF IN RF MODEM SECTION 120
220
DURING ON PHASE, RECEIVE PATH CIRCUITRY 124 AND SIGNAL ACQ BLOCK 126 SCAN PAGE FREQUENCIES TO DETECT SIGNALS FROM A BASE STATION OR OTHER REMOTE TRANSMITTER; TRANSMIT PATH CIRCUITRY 122 TRANSMITS ACK BACK SIGNALS IF REQUIRED
225
OPTIONALLY, DURING ON PHASE, TRANSMIT PATH CIRCUITRY 122 MAY TRANSMIT PAGING SIGNALS AND RECEIVE PATH CIRCUITRY 124 AND SIGNAL ACQ BLOCK 126 MAY SEARCH FOR RESPONSE SIGNALS FROM A BASE STATION OR OTHER REMOTE TRANSMITTER
230
IF SIGNAL ACQ BLOCK 126 DETECTS DATA TRAFFIC, TIMER 105 CLOSES SWITCH 134; LOW POWER MODE CONTROLLER 132 THEN CLOSES SWITCH 158, TURNING ON BASEBAND SECTION 150
END

FIG. 2

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

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Group No.	:	2614
Examiner	:	Olisa Anwah

APPENDIX C -
Evidence Appendix

Not Applicable – No other evidence was entered.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of	:	LAWRENCE J. MALONE, ET AL.
U.S. Serial No.	:	09/938,209
Filed	:	August 23, 2001
For	:	APPARATUS AND METHOD FOR REDUCING POWER CONSUMPTION IN WIRELESS RF SYSTEMS
Group No.	:	2614
Examiner	:	Olisa Anwah

APPENDIX D -

Related Proceedings Appendix

Not Applicable – To the best knowledge and belief of the undersigned attorney, there are none.